FILE # _____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8WM-C

Enforcement Sensitive

MEMORANDUM

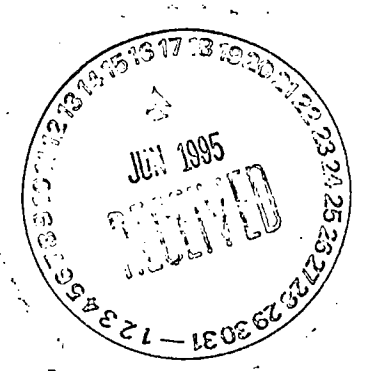
PRIVILEGE

TO: Vern Berry, 8WM-C
Bob Burm, 8WM-C
Karen Hamilton, 8WM-WQ
Karen Kellen, 8RC
Orville Kiehn, 8WM
Peggy Livingston, 8RC
David Moon, 8WM-WQ
Paul Osborne, 8WM-DW
Mike Reed, 8WM-C
Paul Rogers, 8HW-SR
Carol Russell, 8WM-WQ
Elyana Sutin, 8RC
Rob Walline, 8WM
Bill Wuerthele, 8WM-WQ
Bruce Zander, 8WM-WQ

FROM: Melanie Pallman, 8WM-C

SUBJECT: Sunnyside Mine Meeting

DATE: June 16, 1995



Thank you for you interest in the Sunnyside Mine closure lawsuit. Please review the attached materials and be prepared to raise issues and concerns at our meeting scheduled for **Wednesday, ~~May~~ 28th from 1:00 - 3:00 in the Conference Center.** As a reminder, the purpose of the meeting is to try to reach a consensus on EPA's position concerning the proposed consent decree. The attached documents should be considered FOIA exempt (deliberative process) and should not be released.

SUNNYSIDE GOLD CORPORATION
AN ECHO BAY COMPANY

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CONFIDENTIAL
FOR SETTLEMENT PURPOSES ONLY

April 4, 1995

J. David Holm, Director
Water Quality Control Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222

Dear Dave:

Thank you for the opportunity to meet with you to discuss Sunnyside Gold Corporation's proposal. This voluntary mitigation and closure plan addresses the requirements of both the Water Quality Control Division (WQCD) and Sunnyside Gold Corporation (SGC) and it should allow the parties to reach an acceptable settlement of the outstanding issues. We contemplate that a Consent Decree incorporating this proposal will be negotiated by the parties and counsel within sixty days and then entered by the District Court.

→ OPTIMISTIC

Need to incorporate further comments

History and Background

SGC acquired the assets of the historic Sunnyside Mine in 1985, reconditioned the mine and mill, and produced gold from 1985 to 1991. SGC's mining and milling facilities were closed in August of 1991 due to lack of ore reserves and depressed global metal markets. Prior to the decision to implement final closure, SGC developed a strategy to work on reclaiming areas that were deemed unnecessary for any potential future production. A small group of the local workforce has been kept busy as a result of this progr[illegible]nd then transferred on to final closure activities.

During the summer of 1991, SGC began looking at what would be required for final closure and release from permits from both the WQCD and the Division of Minerals and Geology, Mined Land Reclamation (MLR). The MLR permit stated that upon final closure of the mine, concrete bulkheads were to be placed in the tunnels to prevent water from exiting the mine via the American Tunnel and Terry Tunnel.

Hydro-Search of Reno, Nevada was contracted to do a study called Preliminary Characterization of the Hydrology and Water Chemistry of the Sunnyside Mine and Vicinity. The report was completed in February of 1992 and indicated that it would be possible to return the hydrologic flow to an approximation of premining conditions. SGC also contacted Dr. John Abel Jr., Mining Engineer, for evaluation to see if deep seated bulkheads were practicable at Sunnyside. A letter report from Dr. Abel helped to reinforce the Hydro-Search work and encourage SGC to pursue the option of placing hydraulic seals in the Sunnyside Mine.

SGC announced at a joint meeting between the staff people of WQCD and MLR in June 1992, the intention to bulkhead the mine in order to fulfill the terms of its permits and obtain permit release.

Through 1992, SGC, Hydro-Search and Dr. John Abel Jr. gathered additional information necessary to evaluate the hydraulic and hydrochemical aspects of the proposed bulkheads as well as develop detailed engineering plans for the project. This work was completed early in 1993 and a technical revision of SGC's reclamation permit was submitted to the MLRD with a copy sent to the WQCD.

A joint meeting was held to discuss and address technical and regulatory concerns with the project in April of 1993. The technical concerns of MLR were addressed by early fall, however the WQCD still had regulatory concerns. A decision was made to move forward with Mined Land Reclamation Board (MLRB) approval with stipulations that SGC have WQCD approval prior to valve closure. The technical revision was approved by MLRB in November 1993.

No such approval

After MLRB approval, SGC and WQCD tried to resolve differences on the requirements necessary for the hydraulic seal project to move forward. A major issue was whether or not SGC is responsible for seeps and springs that may be reestablished following mine closure.

SGC believes that final reclamation of the mine should include plugging of the American Tunnel and ultimate termination of the discharge at the portal. This would conclude SGC's obligation to have a point source discharge permit. The reestablishment of approximate historic pre-mining hydrologic conditions underground will ultimately lead to reemergence of natural springs and seeps as water no longer moves through the geologic structures to exit the mine tunnel. Such

seeps and springs, in SGC's view, would not be subject to permit requirements as point sources. The WQCD has taken a contrary view.

In May of 1994 SGC filed a declaratory judgment suit in district court to resolve this issue. Since filing, both SGC and WQCD have been trying to reach a settlement which would allow SGC to move forward.

The purpose of this proposal is to be the basis of a Consent Decree settlement of the lawsuit and the permit and regulatory issues. If the actions contemplated by the settlement do not achieve the conditions for permit release contemplated by this proposal, then the parties would be free to pursue the legal positions they have taken or to otherwise seek to resolve the matter.

SGC and WQCD have worked towards reaching a framework of voluntary offsite cleanup efforts in order to satisfy each other's requirements. WQCD's major goal is to allow SGC a method of release from permits without degrading the water quality in the Upper Animas Basin. SGC's major goal is to expedite the closure and reclamation at Sunnyside including final release from all CDPS/NPDES permit (including stormwater requirements). This proposal is made to reach a voluntary agreement that would allow each party to realize its objectives without taking the litigation to a decision. The actual settlement document will make clear that neither party is conceding its legal position on the unresolved regulatory issues.

Voluntary Plan Summary

American Tunnel/Terry Tunnel

During 1995 SGC will close the valves at the Terry Tunnel plug and at the property line in the American Tunnel. Once closed, the mine pool will start to build and will be monitored for pool height. The pool will be considered at equilibrium when the rate of rise of the mine pool has leveled off. Equilibrium will be defined by mutual agreement between SGC and DMG. Once the pool is at equilibrium, SGC envisions the placement of additional hydraulic seals downstream of the property line seal to eliminate the American Tunnel portal discharge and to allow final reclamation of the surface facilities as currently permitted. [redacted] hould maintenance of the portion of the American Tunnel downstream of the property line seal be undertaken by other parties, then SGC will be released from any continued permit obligation. Downstream hydraulic seals or other hydrological controls will be implemented as necessary to maintain ambient quality, as defined, below Silverton or satisfy MLR permit requirements.

need defined

Mitigation Projects

SGC is submitting [redacted] h the WQCD and SGC achieve their goals in the Upper Animas Basin. SGC is willing to complete as many as necessary for achievement of our mutual goals. [redacted] For mitigation sites, a monitoring schedule is outlined under monitoring requirements.

Cement Creek

The WQCD has expressed concern about potential near-term adverse impacts on the Animas River from plugging and cessation of treatment at the American Tunnel. SGC's consultants have not projected such impacts. In order for SGC to allay those concerns and close the valves at the Terry Tunnel and at the property line in the American Tunnel, 8000 feet from the portal, SGC will take steps to create a water quality "cushion" within the Upper Animas system for potential additional loading without change in Ambient Quality below Silverton. To create this cushion, SGC would divert flow from the main stem of Cement Creek, including north fork of Cement Creek, to the current water treatment system for treatment. Upon valve closure at the Terry Tunnel and at the property line in the American Tunnel, SGC will adjust the treatment facilities as necessary to accommodate the remaining flow from the lower American Tunnel and the diverted flow from Cement Creek. This diversion would be regulated in amount from total flow in low flow months up to the equivalent flow, if necessary, lost to the treatment system by sealing during high flow. This diversion will be monitored and controlled to manage impacts at the reference point in the Animas River below Silverton. Once other mitigation steps take effect, the amount of diversion will be decreased and stopped when, in SGC's opinion, they are no longer necessary. The water treatment facility will remain in operational condition until permit release. Upon permit release, the facility will be dismantled and the treatment ponds and surface disturbances reclaimed.

Conditions of Permit Release

When the conditions described below have been accomplished, SGC will be released from its CDPS/NPDES permits including [redacted] It is anticipated this will be at the same approximate time that the MLR permit is finally released. No future point source permits will be required by WQCD for seeps or springs which may emerge or increase after tunnel plugging.

Attorney Client Work Product

Definition of Ambient

The ambient quality reference point will be located below the Town of Silverton after the confluence of Cement Creek, Mineral Creek and the Animas at the beginning of Segment 4a as defined by the WQCC. Samples collected to date have been taken at a sample point named [redacted] SGC would continue sampling there.

The ambient quality of Segment 4a listed in the stream classifications and water quality standards for dissolved zinc is 520 micrograms per liter. By definition, the ambient value is simply the value of the sample at the calculated 85th percentile position of available information arranged in descending order. Fifteen percent of the samples are expected to exceed the ambient quality. The sample collection for this site started in January 1989 and continues today. The ambient standard, however, uses all information gathered during the years 1989 through 1993.

SGC has reviewed the sample results for dissolved zinc and takes issue with the conclusions derived from the small number of samples collected during low flow winter months. Metals loading varies seasonally, with highest concentrations found in the low-flow winter months. Plotting of the data shows that all exceedences of ambient standards occur in the low flow months between November and April and that consistent data collection for low flow months has not been done at the frequency of other months. [redacted] A more accurate value would be approximately 550 micrograms per liter Zn.

SGC proposes that the lower defined ambient quality for dissolved zinc (520 micrograms per liter) can be used as a reference point if all data collected and used in modelling are weighted to sample timing as has been done for the establishment of ambient quality.

Both SGC and WQCD agree that dissolved zinc is the primary metal for which success or failure of sealing the mine is to be evaluated. Zinc is chosen because of its mobility (ie conservative nature) within the Upper Animas River system. When zinc is removed from the system, other metals will likely also be removed.

Voluntary Mitigation Projects

SGC is listing nine mitigation projects which will offset potential loading increases resulting from waters returning to their natural flow paths around the Sunnyside Mine. The projects are

listed as "A" list or primary (those projects on which work will commence after the hydraulic seal valves are closed) and "B" list or secondary (those projects which may need to be completed in order for the dissolved zinc quality at Segment 4a to remain at ambient conditions). The secondary list will be worked on after the primary list has been completed and the quality at the reference point can be monitored to see the effects of the completed work on reducing the dissolved zinc loading from the Upper Animas Basin. Completion of all projects on the secondary list may not be necessary if enough room is created in the Animas to maintain ambient quality and allow for final closure of Sunnyside facilities including permit release.

It is not the intention of SGC to overstudy these projects but to evaluate, engineer and complete work in a safe, proper and expedient manner. All work on mitigation sites will be BMP with the focus on reducing the dissolved zinc loading at the reference p[redacted]. SGC would perform the work in a workmanlike manner and would submit documentation of projects to demonstrate implementation of best management practices ("BMP"). SGC, WQCD and MLR need to conceptually agree that these projects would reduce metals loadings in the Upper Animas as well as reclaim abandoned mine/mill sites.

SGC is listing the conceptual projects for concurrence by the WQCD and MLRD as to the viability of the project as well as an understanding of the BMP technique envisioned to be used at each site. After field inspection of the projects some modification of the work may be necessary depending on conditions occurring at each site.

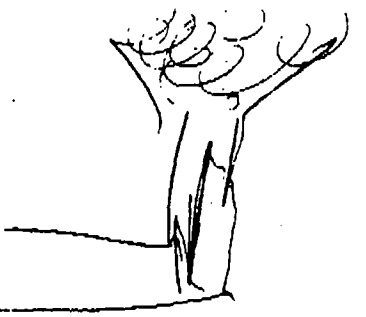
Mitigation on sites not owned or controlled by SGC will require permission of property owners to enter their property to evaluate and do mitigation work. Should permission not be granted, other projects may need to be substituted on the list. Should SGC identify more beneficial projects, they will replace other projects on the "B" or secondary project list with concurrence from both WQCD and MLR.

Prior to commencing work, SGC will supply engineering data to both WQCD and MLR on voluntary mitigation projects.

"A" List - Primary Voluntary Projects

- Sunnyside Mine Pool

  Part of filling of the mine pool would be to introduce high pH water into the pool during filling. The projected target pH of mine water would be 8.0 to 9.0 versus current 6.5 at the American Tunnel. This would allow for the pool to reach equilibrium from a basic pH as oxygen is depleted rather than from an acid pH.



Will this have an impact at low flows.

- Mine Waste Dump - South Fork of Cement Creek

  The remainder of the mine waste dump would be removed and consolidated with addition of high pH material for stability. The area underlying the waste dump will be revegetated in accordance with SGC's MLR permit. The consolidated material will be capped and revegetated.

- Surface Mill Tailings at Eureka - Eureka Townsite

  The surface tailings at Eureka will be removed and consolidated with addition of high pH material for stability. Due to this area existing in an alluvial fan which consists primarily of gravel, no revegetation would be done. The consolidated material will be capped and revegetated.

- Gold Prince Mill Tailings and Closure Bulkhead - Head of Placer Gulch

  The closure bulkhead which prevents entry would be reinforced and portal reshut to create a water retaining bulkhead. The surface mill tailings will be removed and consolidated with high pH material. Disturbances would be revegetated. The consolidated material will be capped and revegetated.

- Koehler Longfellow Portal and Mine Waste Dump - Headwaters of Mineral Creek

  A bulkhead would be installed in the adit to return the hydrologic regime to approximate premining conditions. The mine waste dumps would be removed from the creek bottoms and consolidated with high pH material for stability. Areas that do not occur within talus slopes will be revegetated. The consolidated material will be capped and revegetated.

"B" List - Secondary Voluntary Projects

- Boulder Creek Mill Tailings - Upstream of confluence of Boulder Creek and Animas River

  The tailings will be removed and consolidated with high pH material for stability. The disturbed areas will be revegetated. The consolidated material will be capped and revegetated.

- Pride of the West Mill Tailings - Howardsville

The historic tailings would be removed on the west side of the property away from streams. The material removed would be consolidated and the disturbed areas revegetated.

- Columbus Mine Portal - Animas Forks

A bulkhead will be installed in two adits to prevent direct mine discharge in order to return the hydrologic regime to near premining conditions.

- London Portal - Headwaters of Animas River

A bulkhead will be installed in the adit to prevent direct mine discharge in order to return the hydrologic regime to near premining conditions.

Schedule

The voluntary mitigation projects will start shortly after valve closure and diversion of Cement Creek. Construction is confined to summer and fall months due to the heavy winter snowfalls that occur in the Upper Animas Basin.

The "A" list of primary projects will be completed within the first two field seasons. Monitoring at the reference point for removal of metals loading begins concurrently. Upon completion of the "A" list of voluntary projects, SGC will then start on the "B" list or secondary list of voluntary projects. If the projects are successful in removing dissolved zinc loading from the Upper Animas River all voluntary projects required to maintain ambient quality will be completed in 3 to 4 years.

Permitting

Three permitting issues will need to be resolved as part of a final settlement:

General Permit. The parties will negotiate a water quality permit which will be in the nature of a general permit to cover all of the mitigation projects contemplated by the agreement. The general permit will be based on best management practices for the mitigation projects. It will provide liability protection, to the maximum extent allowed [redacted] The general permit will expire when the mitigation projects have

been completed, and there will be no continuing obligation of SGC to maintain water quality permits or treatment at those sites [redacted] in the nature of a covenant not to sue and a release by the [redacted] mitigation projects included in the settlement.

CDPS/NPDES Permit Amendments. SGC does not contemplate that any additional treatment will be necessary at the Terry Tunnel. SGC will continue to operate the American Tunnel water treatment facilities until they are no longer necessary to maintain the dissolved zinc criterion at the reference point in the Animas River below Silverton. Diversion of Cement Creek waters, which are different in character from mine water, may bring new background toxic conditions into the American Tunnel water treatment system. Since the fourth quarter of 1993, SGC has passed all chronic Whole Effluent Toxicity (WET) tests at the Instream Waste Concentration (IWC) ratio, which demonstrates that the treated mine water discharge has not been toxic. [redacted] standards, there will be an improvement in the Animas Basin, as well as an acceptable compliance point for enforcement.

At the conclusion of the requirements of the Consent Decree, the existing CDPS/NPDES permits would be released. [redacted]

Other Permits. If other environmental permits are required for the mitigation projects, such as Section 404 permits or "reclamation only" MLR permits, WQCD will cooperate with SGC in obtaining such permits from the appropriate agencies so that the projects can go forward in a timely fashion. If necessary permits are ultimately denied by the responsible agency, that portion of the mitigation projects will be deleted from the requirements of the Consent Decree.

Monitoring Requirements

As long as the Consent Decree is in effect, SGC will monitor the following sites according to the schedule below.

SGC Permitted Area

- American Tunnel Inflow - Sampled monthly for dissolved and total metals until no flow exists or permits are released.
- Cement Creek Inflow - Sampled monthly for dissolved and total metals while Cement Creek is diverted.
- American Tunnel Effluent - Sampled weekly for total metals and monthly for dissolved. Below the confluence of the American Tunnel effluent and Cement Creek will be sampled monthly for total and dissolved metals until Cement Creek diversion and treatment of American Tunnel waters cease.
- Terry Tunnel Inflow - If flow exists, inflow will be sampled, when accessible, for dissolved and total metals until no flow exists or permits are released.
- Terry Tunnel Effluent - If treatment is required due to flow from portal, effluent will be sampled, when accessible, weekly for total metals and monthly for dissolved until no flow exists.
- Sampling of other areas per SGC's MLR permit will continue until SGC is released from its obligations by MLRD. Sampling of other areas per SGC's CDPS/NPDES permits will continue until SGC is released from those permit obligations.

Mitigation Sites

SGC will monitor mitigation project sites for dissolved base metals starting in 1995. Sampling will stop two years after each project is completed. If appropriate, SGC will collect a sample above, below, and at the mitigation site. Four sample periods will be done yearly with one at high flow, when the site is accessible, and one at low flow, late fall.

Reference Point

- Reference point will be sampled for dissolved metals at a weighted frequency comparable to that existing for the time period of 1989 through 1993. This sampling will continue until SGC is released from CDPS/NPDES permit requirements.

Potential Adverse Effects by Others

Should new adverse effects on the Upper Animas Basin occur through man-made or natural causes, SGC will monitor these causes so that a mathematical adjustment can be made to the Calculation Methodology for Ambient Quality in the Animas River below Silverton.

Calculation Methodology

SGC will be released from its permits when information exists to calculate that the ambient dissolved zinc criterion at the reference point will not be exceeded if treatment of Cement Creek is stopped. The timing of this calculation is addressed below.

The calculation will require information on quantity of flow and concentration of dissolved zinc in the water at both the reference point and at all streams of water treated at the American Tunnel. On a monthly basis the following calculations would be made to determine a calculated quality at the reference point. The calculated quality could then be compared to the established ambient quality.

1) Reference point quantity x reference point quality = reference point loading

2) Cement Creek inflow quantity x Cement Creek inflow quality = Cement Creek loading

3) American Tunnel inflow quantity x American Tunnel inflow quality = American Tunnel loading

4) Treatment discharge quantity x treatment discharge quality = treatment discharge loading

5) Adverse impact quantity x adverse impact quality = adverse impact loading (activities of others)

6) Reference point loading + Cement Creek loading + American Tunnel loading - treatment discharge loading - adverse impact loading = calculated loading.

7) Calculated loading ÷ reference point quantity = calculated quality.

This calculation will be carried out based on monthly sampling to determine how the Upper Animas Basin is reacting to voluntary mitigation. Based on this calculation SGC will be released from its permits when water treatment is stopped, without long-term monitoring.

Attorney Client Work Product

Reference Point

The reference point will be at the WQCD's sample point A-72 below Silverton near an established USGS gauge and below the confluence of Cement and Mineral Creeks with the Animas River. The point will be sampled as described above and [redacted] ents).

Estimated Timing

Based on historical information, Hydro-Search expects the final mine pool elevation to be at equilibrium at approximately 11,500 feet above mean sea level. Their volume calculation gives total cumulative gallons at equilibrium of approximately 195 million gallons. Hydro-Search's two methods of estimating the schedule of natural mine flooding predict that the water level will substantially reach equilibrium (86% of equilibrium) in one to ten years.

SGC can pump an additional 200+ gallons per minute into the mine pool during summer months, thus shortening the total fill time by 12% of total gallons for each year that water is pumped into the mine. If SGC pumps additional water into the mine, total fill time would be reduced by about 12% per year of pumping, and fill time may be reduced to between one year and four years.

Once equilibrium of the mine pool is established, the terms of SGC's MLR permit allow for 2 years of monitoring prior to considering the project successful. The 2 years is to allow for evaluation of short circuits of waters that might emanate from the Sunnyside workings and to evaluate the property line plug. After the deep seated bulkhead is determined successful, SGC would grout the pipes in the deep seated bulkhead at the American Tunnel and then start plugging of the lower American Tunnel waters.

WQCD has expressed a concern that enough time be allowed for the pool to reach equilibrium both in quantity and chemically. SGC proposes that a minimum time for permit release be 5 years after valve closure at the property line plug in the American Tunnel.

The voluntary mitigation projects will start as soon as practicable after valve closure. The "A" list or primary projects will be complete within 18 months. Mitigation of the "B" list of projects would start after monitoring results from the reference point allow for evaluation of the specific number of projects necessary. All work would be completed by the end of the fourth field season.

Attorney Client Work Product

Attached please find a flow diagram which shows the steps SGC is voluntarily taking in order to move toward final permit release.

To allow SGC to move this process forward to 1995 construction, prompt negotiation of the final agreement will be needed. If the WQCD agrees in principle with this proposal, we request that the WQCD confirm that agreement by a letter which would establish a non-binding agreement in principle.

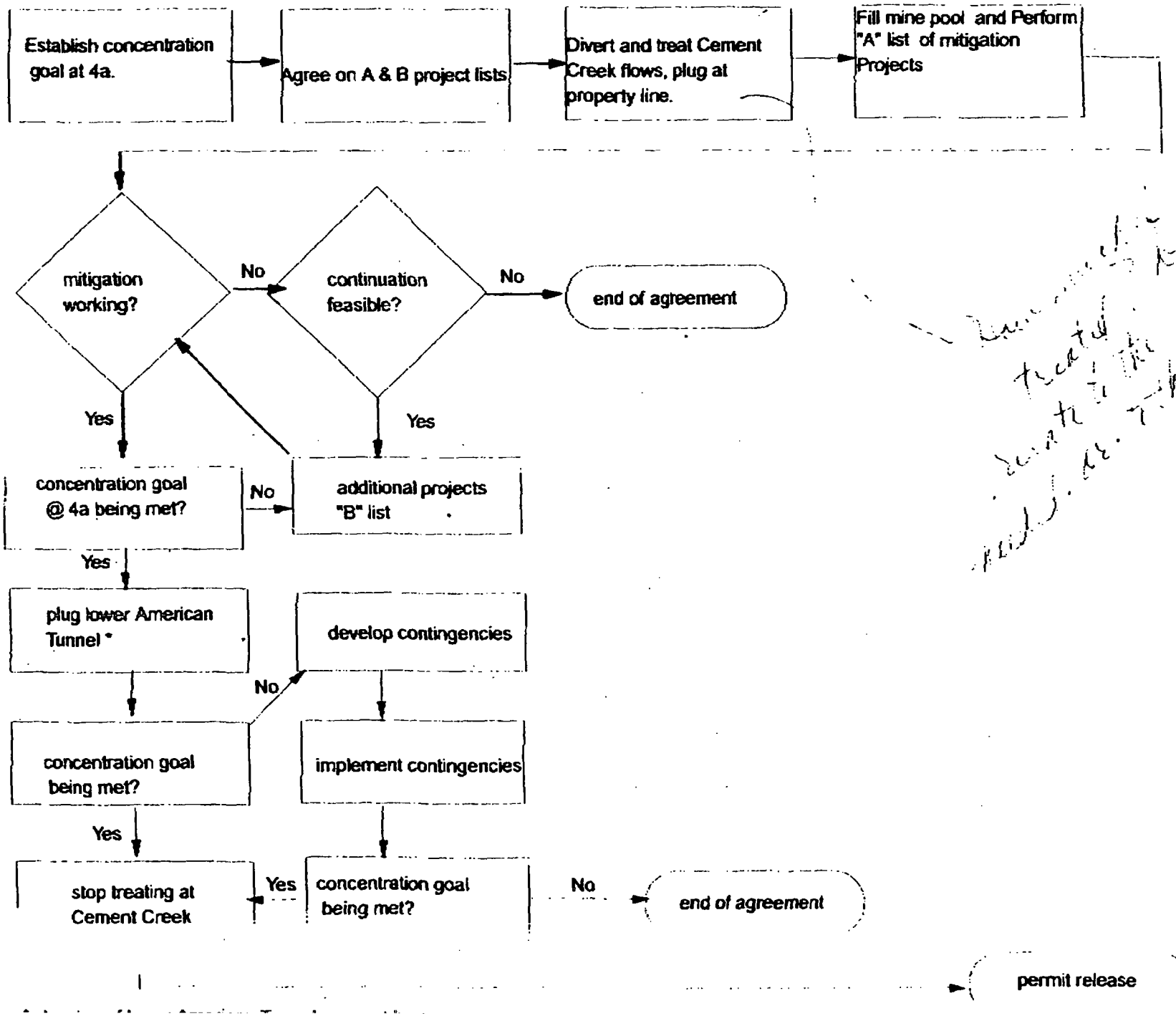
Sincerely,

William B. Goodhard wbg

William B. Goodhard
Resident Manager

cc: Amelia Whiting, Esq. (w/enclosures)
Allen Sorensen (w/enclosures)

Settlement Flow Chart
Sunnyside Gold Corporation



STATE OF COLORADO

Roy Romer, Governor
Patti Shwayder, Acting Executive Director
Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department
of Public Health
and Environment

May 12, 1995

Mr. William B. Goodhard
Resident Manager
Sunnyside Gold Corporation
P.O. Box 177
Silverton , CO 81433

RE: Discussion Items for May 17, 1995 Meeting

Dear Mr. Goodhard:

In order to facilitate our discussion on May 17, we felt that it would be advantageous to provide a listing of those areas which still need discussion or those technical items where the Division has questions and seeks clarification. The purpose of this letter is to provide you with this information. The following is a list of items which need discussion:

Treatment of Cement Creek

It is the Division understanding that Sunnyside Gold Corporation and Echo Bay Mines ("SGC") have committed to treatment of Cement Creek in an effort to provide a loading deficit in the stream to absorb the anticipated increased loading from the plugging of the American Tunnel. This concept is acceptable to the Division. We do, however, need to better understand how the system you proposed will work. Could you please provide us with an explanation of how this will physically be accomplished. In particular, how will the decision be made on the total quantity of flow to be diverted. What is the anticipated loading removal that SGC is expecting by the diversion and treatment of Cement Creek? We assume that the zinc loading to be removed from Cement Creek will be equal to the anticipated loading from the plugging. (See January 13, 1995 letter to Mr. William Goodhard from the Division for possible loading scenarios.) Has SGC evaluated whether there is sufficient loading in Cement Creek at the point of the American Tunnel to balance the anticipated loading? Our quick calculations would indicate that it may be difficult to meet the most optimistic scenario under some low flow conditions. What is the expected quality of the discharge from the combined system? Will the treatment system be capable of handling the flow both hydraulically and chemically?

The process used to decide when to cease treatment of Cement Creek needs to be further developed. Such a decision should include some level of input from both the Division and Division of Minerals and Geology.

Definition of Ambient

The Division has evaluated your comments concerning the definition of ambient and we have thought about how to impose the 520 ug/l in an efficient manner. The determination as to whether the water quality goal at A-72 is met should be based on using all of the paired streamflow and zinc concentrations data. At issue here is the need to determine the criteria to be used to evaluate whether the zinc concentration has increased, decreased, or not changed at A-72. The Division has established the 85th percentile zinc concentration standard, based on a simple rank ordering of the data for stations A-72 and RPS-82, as 520 mg/l. The following is a concept on which we would like your thoughts.

The existing concentration of zinc is a function of stream flow at A-72. The relationship between stream flow an the concentration of dissolved zinc shows that 520 ug/l zinc concentration, on average, corresponds to a discharge of 44 cfs which approximates the annual low flow. The attached graph illustrates the variability in the zinc concentration, especially at the low flow end of the curve. The flow-concentration "model", rather than a single number, allows use of the entire data set to evaluate change/no change in zinc concentration at A-72. For example, reduced zinc concentration would result in most or all of the data points falling below the existing line. Concentrations at a given flow above the line would indicate a lowering of water quality. This "model" assumes that the percent change in zinc concentration owing to BMP's and mine closure is uniform throughout the flow range of interest. The loading analysis done by the Non-Point Source Program for four synoptic events indicates that the load percentage from the various watersheds is based on a relationship between stream flow and concentration.

It was proposed by SGC that weighing samples to the low flow period on the theory that past sampling was biased toward high flows. The flow-concentration model makes use of what ever data is obtained. If unusually high flow or low flow conditions are encountered during the evaluation period, the flow-concentration model should be neutral. Moreover, the streamflow at which 85th percentile zinc concentration is expected to occur should not change, therefore, the traditional approach to setting an ambient standard can still be used. We can discuss this further at our meeting.

Voluntary Mitigation Projects

The list of mitigation projects is good. We would like to have additional information on the expected loadings to be removed by the projects. The Division needs to have a better understanding of the information that will be gathered prior to any remediation efforts. The Division will want to ensure that there are adequate reviews of the plans and there is a reasonable amount of information which supports the activities at the sites and that the likelihood for success is high. Specifically, detailed information as to where and to what extent the Koehler/Longfellow, Gold Prince, Eureka and South Fork of Cement Creek dumps and mill tailings will be removed. Both the Water Quality Control Division and the Division of Minerals and Geology must be involved in the process of design and in the implementation and final inspection of the A and B projects.

Additional information is needed on the proposal to fill the mine with alkaline water. While it would seem to be appropriate to accelerate the filling of the mine in order to determine what the impacts are in a shorter time frame, our concern is about over long term water quality impacts. Will the water eventually return to acidic conditions thus creating a water quality impact in the future? Will there be pockets of water in the mine which are not filled by the alkaline water? Has this been done anywhere else with success? The Division needs more information on this process. We would appreciate information on exactly how it will be done and what measures will be taken to ensure that the water is distributed through out the workings. How will SGC determine if it is working and the estimated time for the water quality to reach equilibrium?

Permitting

General Permit. The Division is willing to draft a permit for the work on all mitigation sites. We have several permits in a draft stage which would provide the coverage and flexibility you desire. It would require that there be no degradation in the water quality from your activities other than transient impacts associated with construction. However, we do not feel that we could finalize and issue such a permit in the time period you requested. We estimate 60+ days to get the permit to a stage where it can be public noticed. We would be willing to cover some of the activities, such as some tailings removal, under stormwater general permits. This would provide SGC with the coverage under a permit in less than 30 days and, therefore, allow some remediation to commence. We could also be working on finalizing a permit which deals with the other sites in question.

CDPS/NPDES Permit. The current permits for the American Tunnel, Terry Tunnel and Mayflower mill are expired and have been extended. It would be the Division's intent to maintain these permits until it is agreed that the permits no longer are needed. We do feel that they do need to be renewed so that they accurately reflect the current situation and standards. At this time we anticipate that the requirements to meet BAT will be the appropriate limitations, however we must evaluate the discharge and ensure that any permit limitations are in compliance with federal and state law and regulations. Has SGC evaluated what the quality of the discharge from the combined Cement Creek/American Tunnel discharge needs to be to meet the expected loading necessary to have no impact from the tunnel plugging? Concerning the inclusion of WET requirements, the Division feels that for the Terry Tunnel and the Mayflower Mill any discharges need to be in compliance with the WET requirements. Once the American Tunnel treatment system begins to treat Cement Creek, then the Division would agree that WET testing is not appropriate of the combined discharge.

The stormwater requirements state that a permit is necessary until bond release and/or stormwater no longer comes into contact with mining waste. This permit will be needed until the site meets the regulatory requirements for permit termination.

Monitoring Requirements

The Division needs more information relative to the monitoring plan. This is an important part of the agreement. It is important that the elements of the plan be outlined in detail to ensure that there will not be confusion in the future as to what is required. It is very important that both the Division and SGC have good data on which to base decisions. It is suggested that the monitoring plan required by DMG be combined with that proposed to meet our concerns. This would provide everyone with a good understanding of the area's water quality, avoid duplication of work and allow SGC to provide the same information to both agencies. The monitoring information required by DMG is also important to us. We have assumed that our monitoring program requirements would be in conjunction with DMG's requirements. Therefore we would expect that the data from the plans would be sent to both agencies and that the monitoring plan would be in place until both agencies agreed to any changes. The Agreement will need to specify the sampling and analysis techniques which will be used. Specific comments on your proposal are:

SGC Permitted Areas: It is not clear if the monitoring listed is in addition to CDPS permit requirements or are the permit requirements that SGC wishes to have included in the permit. There is not a list of what metals are meant by "dissolved and total metals". The specific parameters need to be listed in the final agreement. We would appreciate some clarification on the parameters which SGC was planning to include. There is concern that the quality of Cement Creek may change quickly especially during different portions of the year such as during spring runoff. Monthly monitoring may not be adequate to note changes in quality. Additional information is needed on how the diversion of Cement Creek will function before we can come to agreement on the proposed monitoring program.

Mitigation Sites: The time frame for monitoring at the mitigation sites should be based on the type of mitigation to be expected. The monitoring program proposed for these sites may be adequate for some however, others may need additional monitoring sites, additional parameters or need to be monitored for a longer period of time. It is suggested that the monitoring program be part of the submittal for each mitigation site.

Reference Point: The discussion on the reference point includes a discussion on the calculation of the reference point level and the necessary monitoring. It is proposed that SGC use only A-72 as a reference point. The WQCC adopted ambient standards for the Animas River between Maggie Gulch and Cement Creek. Mine closure may affect the zinc concentration in this segment, therefore a monitoring point should be established for this segment. A-68 would be a good location.

Besides points at A-72 and A-68, it is recommended that a monitoring point on Cement Creek, preferable at C-48 be established. Cement Creek has a similar flow/zinc concentration relationship as A-72. This point could be used to establish the amount of zinc level reductions required from the Cement Creek treatment plan. Monitoring at C-48 benefits SGC in that the need for additional mitigation projects could be more reliably determined than by depending on A-72 alone, and the Division would know the effectiveness of the plug. Cement Creek should not become a reference point because the possibility of the zinc concentration increasing in Cement Creek, however we do need to know what is happening in this segment.

It is not clear how SGC will determine if there are adverse impacts on the Animas from other parties. This is very important to SGC so that it is not held responsible for the exceedances of the 520 ug/l which are not the result of its activities. The Division feels that the burden must be on SGC for providing an affirmative defense on any exceedances. The Division would like to see the procedures that will be used to determine if there are adverse impacts.

The Division does not understand the calculation methodology outlined in your proposal. We would appreciate your clarification on this at the May 17 meeting. It seems that the reference point loading should be equal to the calculated loading at the reference point minus the loading of any adverse impacts. (It is suggested that the term "adverse impact" be defined in the agreement.)

The Division does not see the reference point as a goal or an indicator. This value is a baseline which will trigger required actions if exceeded.

Estimated Timing

The Division is not comfortable with committing to a five year time period from when the plug is placed at the property line to permit release. The Division will want to see the mine pool stabilized prior to permit release and have a good baseline of information which shows that the 520 ug/l is met and will continue to be met prior to allowing the permit to terminate. The inclusion of the alkaline waters may push the decision point somewhat further into the future. It is our understanding the DMG permit requires monitoring after equilbruim and is not tied to the date that the plug is closed at the property line.

Conditions for Final Permit Release

Items 1 and 7 do not necessarily agree. Item one says that the mine pool has reached equilibrium plus 2 years while item seven states that five years has elapsed since the valve was closed at the property line. While it is possible that these two could agree, it is also possible that equilibrium may not be reached in three years. If the mine takes 10 years to reach equilibrium, the time period for release could be 12 years after closing the plug at the property line.

The conditions outlined for permit release do not state that the quality of the Animas is acceptable. It is very important to the Division that any release from any additional requirements be contingent on the quality of the Animas.

Other Items.

There was an item which we discussed previously but on which your proposal was silent on, this is the need for public involvement. It is very important that the public which will be affected by the activities of SGC have the opportunity to review and comment on this agreement. The Division will not enter into an agreement which is opposed by the general public. The Division will insist that Echo Bay commit itself to compliance with the agreement and the NPDES permits. ~~and a requirement that Echo Bay Mining is party to the agreement~~

Long Term Liability. There were several statements in the proposal which deal with the release of long term liability. These matters will need to be dealt with individually. In some cases the Division may not have the authority to release SGC from liability, in others the amount of release that we feel comfortable with is directly related to other conditions of the agreement. These issues will need to be dealt with during the drafting of an agreement.

We hope that this letter provides you with information which will make our meeting on May 17 more efficient. Please contact me with any questions.

Sincerely,

Patricia Nelson

Patricia A. Nelson, P.E.
Industrial Program Chief
Permits and Enforcement Section
WATER QUALITY CONTROL DIVISION

cc- Jim Horn, Field Support Section, WQCD
MS-3 Permit File
Amelia Whiting, Attorney General's Office
Allen Sorenson, Division of Minerals and Geology
Bill Robb, Dufford and Brown, PC
David Holm, Water Quality Control Division

Dissolved Zinc vs. Streamflow
Animas River below Mineral Creek